



# Technical Efficiency Analysis of Maize Growers in Muzaffarad District, Azad Jamukashmir, Pakistan

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## Abstract

This research endeavor was undertaken to estimate the technical efficiency of maize growers, which has future implication for food security in Pakistan. The study was conducted in four villages of the Muzaffarabad District of Azad Jamukashmir. Primary data was collected during 2013–2014 from 80 respondents selected through proportional allocation sampling design. This study utilized a Cobb-Douglas stochastic production frontier analysis. Results show that mean technical efficiency was estimated at 83%, implying that the farmers can still boost production by 17%. The estimates illustrated that seed, tractor-hours, farm yard manure (FYM), and labor days were significantly increasing maize yield. However, diammonium phosphate (DAP) and urea had insignificant effect. The results have demonstrated that maize is a lucrative crop in the study area, as growers had received increasing return to scale, i.e.,  $1.90$  ( $E_p > 1$ ). Hence, economies of scale exist. The variance parameter  $\lambda$  and  $\Gamma$  both were significant indicating the good fit of model and inefficiency impact, respectively. The estimated gamma value of  $0.77$  underscores that 77% variation in the production frontier was explained by technical inefficiency effect, which includes farmer's schooling years, number of contacts with extension agents, farmer's age, and farm size. This study conclude that labor use and FYM utilization is highly significant. It is recommended that input prices should be controlled by the regulatory authorities to encourage the use of DAP and urea to enhance the maize yield and cope up with food demand.